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Evidence—New Federal Standard for Admission of Scientific Evidence. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993).

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EVIDENCE—NEW FEDERAL STANDARD FOR ADMISSION OF SCIENTIFIC EVIDENCE: *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993).

I. INTRODUCTION

In recent years the American legal system has faced mounting pressure to resolve issues at the forefront of science and technology.¹ DNA testing, for example, has come fresh from the frontiers of the scientific laboratory to be presented as a relevant factor in the most routine criminal cases.² Techniques involving the psychological stress evaluator, posthypnotic testimony, voiceprint, child abuse syndrome, forward-looking infrared analysis, and battered wife syndrome are being offered as scientific evidence though they were totally unheard of a few years ago.³ Some of the pressure on the courts stems from the growth in environmental and toxic tort litigation, which often involve large numbers of people and raise significant economic, social, and public policy concerns.⁴ As the pressure has mounted, courts and legal scholars have struggled with divergent views on what tests should be applied to determine the admissibility of purportedly "scientific" evidence.

On June 28, 1993, the United States Supreme Court handed down its long-awaited decision in the case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,⁵ in which the court ruled that the "Frye" test no longer applies in federal courts.⁶ The *Frye* test, a threshold test for determining the admissibility of scientific evidence, required that such evidence be based on techniques or methods that have become generally accepted in the appropriate scientific community.⁷

1. Brief of the Carnegie Commission on Science, Technology, and Government as Amicus Curiae in Support of Neither Party, at 3, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993) (No. 92-102), available in LEXIS, Genfed Library, Briefs File.

2. *Id.* The first admission of DNA evidence in the United States for identification of a criminal defendant was upheld in 1988 on appeal to a Florida state court. *Andrews v. State*, 533 So. 2d 841 (Fla. Dist. Ct. App. 1988). By 1990, 38 states had admitted DNA evidence in 185 cases. L. Damon Whitmore, Note, *The Admissibility of DNA Evidence in Criminal Proceedings*, 39 WAYNE L. REV. 1411, 1411 (1993).

3. Roger S. Hanson, *James Alphonzo Frye Is Sixty-Five Years Old; Should He Retire?*, 16 W. ST. U. L. REV., 357, 359 (1989).

4. Brief of the Carnegie Commission on Science, Technology, and Government as Amicus Curiae in Support of Neither Party, at 3, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993) (No. 92-102), available in LEXIS, Genfed Library, Briefs file.

5. 113 S. Ct. 2786 (1993).

6. *Id.* at 2793.

7. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

The *Frye* test had become the dominant standard for determining the admissibility of scientific evidence in the seventy years since it was first articulated in 1923.⁸ In place of the *Frye* test, the Supreme Court directed federal trial court judges to make preliminary assessments to determine whether proffered scientific evidence or testimony is relevant, reliable, and not unduly prejudicial or confusing.⁹

II. FACTS

The petitioners in *Daubert* were two minors and their parents.¹⁰ Jason Daubert and Eric Schuller were born with limb-reduction birth defects.¹¹ During pregnancy the mothers of Jason and Eric had taken Bendectin, a prescription drug manufactured by respondent Merrell Dow Pharmaceuticals, Inc.¹² and used for the treatment of nausea and vomiting.¹³ The petitioners brought suit,¹⁴ alleging that the ingestion of Bendectin by the mothers during pregnancy caused the birth defects.¹⁵ The petitioners offered the opinion testimony of eight experts to establish that Bendectin use caused limb-reduction birth defects.¹⁶ The district court, applying the *Frye* test,¹⁷ found petitioners' proffered evidence to be inadmissible and granted the respondent's motion for summary judgment.¹⁸ Although a vast amount of epidemiological¹⁹ data was available regarding Bendectin, the

8. 113 S. Ct. at 2792.

9. *Id.* at 2796. The Court derived this "relevancy" approach from the Federal Rules of Evidence. *Id.* at 2795. The Court relied primarily on FED. R. EVID. 702. 113 S. Ct. at 2795. The Court also based its ruling on FED. R. EVID. 402, which generally requires admission of relevant evidence; FED. R. EVID. 401, which defines relevant evidence as that which has any tendency to make the existence of any fact in issue more or less probable than it would be otherwise; and FED. R. EVID. 403, which balances relevance against potential unfair prejudice, confusion, and delay. 113 S. Ct. at 2793-94, 2798.

10. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2791 (1993).

11. *Id.*; *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 727 F. Supp. 570, 571 (S.D. Cal. 1989). According to the petitioners, these limb-reduction birth defects were severe and permanent. Petitioner's Brief, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993), available in LEXIS, Grenfed Library, Briefs [hereinafter Petitioner's Brief].

12. 113 S. Ct. at 2791. Bendectin was withdrawn from the market in 1983. Petitioner's Brief, *supra* note 11, at 7.

13. 113 S. Ct. at 2791; 727 F. Supp. at 571.

14. The suit began in California state court but was removed to federal court on diversity grounds. 113 S. Ct. at 2791.

15. *Id.*

16. 727 F. Supp. at 571, 573.

17. *Id.* at 572. Although the district court did not cite *Frye*, the test it applied was the *Frye* test. Petitioner's Brief, *supra* note 11, at 12.

18. 727 F. Supp. at 571, 576.

19. Epidemiology is a science which focuses on groups of people, and the

petitioners' evidence was not based on such data but instead was based on animal-cell studies, live-animal studies, chemical-structure studies, and recalculations of epidemiological data from previous studies that had found no link between Bendectin and birth defects.²⁰ The court held that these types of evidence did not meet the standard of general acceptance because they were not epidemiological in nature²¹ or because, in the case of the recalculations of epidemiological studies, they had not been published or subjected to peer review.²²

On appeal, the United States Court of Appeals for the Ninth Circuit, like the district court, used the *Frye* test as the standard for admissibility.²³ The Ninth Circuit noted that four sister circuits had already ruled on cases in which Bendectin was the alleged cause of limb-reduction birth defects.²⁴ Three of those circuits had ruled that the plaintiffs could not establish causation without critically-analyzed epidemiological studies.²⁵ The Ninth Circuit, in accord with those three circuits, held that the reanalyses of epidemiological studies could not be generally accepted in the scientific community without scrutiny and verification by others in that scientific field and that

occurrence of illness. Nancy A. Dreyer, *An Epidemiologic View of Causation: How it Differs From the Legal*, 61 DEF. COUNS. J. 40, 40 (1994). Typically, epidemiologic information is gathered by studying existing information about human groups and drawing inferences. *Id.* For example, a group of people living near a nuclear plant may be compared with people living further away, to infer facts about residential exposure. *Id.* Epidemiologists do not include animals in their studies. *Id.* Some courts in toxic torts cases have been skeptical of experts who have based their opinion of causation of injury to humans upon animal or other non-epidemiological data. Eric W. Wiechmann, *Standard of Proof for Increased Risk of Disease or Injury*, 61 DEF. COUNS. J. 59, 62 (1994).

20. 727 F. Supp. at 574-76. In the "animal-cell studies," animal cells exposed to Bendectin were scrutinized by microscope to determine whether abnormal cell development resulted. Petitioner's Brief, *supra* note 11, at 4. The "live-animal studies" compared the offspring of animals subjected to Bendectin during gestation with unexposed offspring. Petitioner's Brief, *supra* note 11, at 4. The "chemical structure studies" compared the chemical structure of Bendectin with that of substances known to cause comparable birth defects. Petitioner's Brief, *supra* note 11, at 4-5. The "recalculations of epidemiological studies" involved data gathered from studies comparing the occurrence of various types of birth defects in babies whose mothers used Bendectin and those who did not. Petitioner's Brief, *supra* note 11, at 5.

21. 727 F. Supp. at 575.

22. *Id.*

23. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 951 F.2d 1128, 1129 (9th Cir. 1991).

24. *Id.* at 1130 (citing *Deluca v. Merrell Dow Pharmaceuticals, Inc.*, 911 F.2d 941 (3d Cir. 1990); *Brock v. Merrell Dow Pharmaceuticals, Inc.*, 874 F.2d 307 (5th Cir. 1989), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990); *Richardson v. Richardson-Merrell, Inc.*, 857 F.2d 823 (D.C. Cir. 1988), *cert. denied*, 493 U.S. 882 (1989); *Lynch v. Merrell-National Labs.*, 830 F.2d 1190 (1st Cir. 1987) (opinion by Noonan, J., sitting by designation)).

25. *Id.* (citing 874 F.2d at 313-15; 857 F.2d at 830; 830 F.2d at 1194).

the other evidence lacked general acceptance since it was not epidemiological.²⁶ The court of appeals concluded that the petitioners' evidence was inadmissible for its failure to satisfy the *Frye* test and that, as a result, the petitioners could not prove causation of the injuries by Bendectin use.²⁷ The Ninth Circuit affirmed the summary judgment in favor of Merrell Dow.²⁸

The Supreme Court granted certiorari²⁹ because of the inconsistency among the circuits on the issue of the standard of admission for expert testimony.³⁰ In a unanimous opinion, the Supreme Court agreed with the petitioners' claim that the *Frye* test had been superseded by the adoption of the Federal Rules of Evidence.³¹ However, a majority of the Court stated that the displacement of the *Frye* "general acceptance" test did not mean that there were no threshold requirements for purportedly scientific evidence.³² Instead of basing admissibility strictly on general acceptance, the Court directed trial judges to ensure that offerings of scientific evidence are both relevant and reliable.³³

The Court cited Rule 702 of the Federal Rules of Evidence as the focal point of the relevance and reliability requirement³⁴ and determined that Rule 702 established a flexible inquiry as to those

26. *Id.* at 1131 (citing Michael Dore, *A Commentary on the Use of Epidemiological Evidence in Demonstrating Cause-in-Fact*, 7 HARV. ENVTL. L. REV. 429, 438-39 (1983) (discussing requirements for original epidemiological studies)).

27. *Id.*

28. *Id.*

29. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 320 (1992).

30. 113 S. Ct. at 2792. *Compare* *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1115-16 (5th Cir. 1991) (per curiam) (en banc), *cert. denied*, 112 S. Ct. 1280 (1992); *United States v. Smith*, 869 F.2d 348, 351 (7th Cir. 1989); *United States v. Metzger*, 778 F.2d 1195, 1203 (6th Cir. 1985), *cert. denied*, 477 U.S. 906 (1986); *and* *United States v. Shorter*, 809 F.2d 54, 59 (D.C. Cir. 1987) (holding that *Frye* test was not superseded by Federal Rules), *cert. denied*, 484 U.S. 817 (1987) *with* *DeLuca v. Merrell Dow Pharmaceuticals, Inc.*, 911 F.2d 941, 955 (3d Cir. 1990); *United States v. Williams*, 583 F.2d 1194, 1198 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979); *and* *United States v. Baller*, 519 F.2d 463, 466 (4th Cir. 1975) (rejecting general acceptance test), *cert. denied*, 423 U.S. 1019 (1975). *See also* *United States v. Two Bulls*, 918 F.2d 56, 61 (8th Cir. 1990) (incorporating general acceptance as part of a three-prong test), *reh'g granted, vacated*, 925 F.2d 1127 (8th Cir. 1991).

31. 113 S. Ct. at 2793.

32. *Id.* at 2794-95.

33. *Id.*

34. *Id.* at 2795. FED. R. EVID. 702, Testimony by Experts, states, "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise."

requirements.³⁵ Rather than delineating a detailed test for relevance and reliability, the Court acknowledged that a variety of approaches already proposed by lower courts and commentators may have merit to the extent that they focus on the scientific validity of underlying principles and methodology rather than on the conclusions they generate.³⁶

III. BACKGROUND

A. Historical Development of Evidentiary Rules

The law of evidence exists largely because lawyers and judges mistrust juries.³⁷ Evidentiary rules began to develop concurrently with the formation of the modern jury system.³⁸ The prevailing view was that the same evidence which might be safely evaluated by a judge could be dangerous in the hands of ordinary lay jurors.³⁹ Jurors, unfamiliar with the law, were apt to be easily swayed or misled by appeals to their sympathies, passions, or prejudices.⁴⁰ In addition, jurors confronted with specialists or "experts" might tend to give undue deference to their opinions. The development of the evidentiary rules regarding opinion testimony and expert testimony reflects that reasoning.

Longstanding legal tradition held that lay witnesses were allowed to testify as to facts perceived and could not give their opinions.⁴¹ This was the rule under the common law, and it is generally the same under the Federal Rules of Evidence.⁴²

35. 113 S. Ct. at 2797.

36. *Id.* at 2797 n.12 (citing *United States v. Downing*, 753 F.2d 1224, 1238-39 (3d Cir. 1985); 3 JACK B. WEINSTEIN & MARGARET A. BERGER, *WEINSTEIN'S EVIDENCE* ¶ 702[03], at 702-41 to 702-42 (1988); Mark McCormick, *Scientific Evidence: Defining a New Approach to Admissibility*, 67 IOWA L. REV. 879, 911-12 (1982); *Symposium on Science and the Rules of Evidence*, 99 F.R.D. 187, 231 (1983) (statement by Margaret A. Berger)).

37. CHRISTOPHER B. MUELLER & LAIRD C. KIRKPATRICK, *EVIDENCE UNDER THE RULES: TEXT, CASES, AND PROBLEMS* 1 (2d ed. 1993). For example, the rules limiting admission of character evidence assume that juries place too much value on such evidence or use it to punish persons with character traits they find offensive. *Id.*

38. ROBERT L. DONIGAN ET AL., *THE EVIDENCE HANDBOOK* §§ 1-2, (Robert H. Reeder ed., 4th ed. 1980).

39. *Id.*

40. *Id.*

41. MUELLER & KIRKPATRICK, *supra* note 37, at 683.

42. MUELLER & KIRKPATRICK, *supra* note 37, at 683. A lay witness may give opinion testimony only when there is first-hand knowledge or observation and where such opinion is helpful in resolving the issues. FED. R. EVID. 701.

Three factors contributed to this traditional view.⁴³ The first was a misreading of old English precedents that condemned opinion testimony by witnesses who had no first-hand knowledge.⁴⁴ These precedents were misread by American courts as rejecting opinion testimony even where the witness had first-hand knowledge.⁴⁵ The second reason was that, when it became acceptable for experts (those with training in science) to state their opinions analyzing and interpreting underlying data in order to help lay jurors understand complex issues, lay opinions were thought to be inappropriate because lay witnesses lacked that scientific training.⁴⁶ The third factor was a firm conviction that triers of fact should draw their own conclusions from lay testimony, and allowing lay witnesses to give opinions would be an intrusion into the fact finder's domain.⁴⁷

Early courts were especially sensitive to the issue of witnesses invading the province of the jury.⁴⁸ Common-law tradition proscribed not only lay witnesses but even experts from testifying as to the ultimate issues in the particular case.⁴⁹ This "ultimate issue" preclusion of opinion testimony expressed a fear that opinions could influence the jury to abandon its duty to weigh the evidence and determine facts on its own.⁵⁰ There was a concern that the jury needed to be protected from situations where opinions given by witnesses might be adopted without critical analysis.⁵¹ Similarly, the *Frye* test is a rule which limits admissibility of expert testimony.

B. The *Frye* Case and Its Early Acceptance

Because of its aura of special reliability and trustworthiness, scientific or expert testimony presents the potential hazard of unduly prejudicing or confusing the issues or misleading juries.⁵² Many courts have applied special rules of admissibility when the evidence is offered by scientific experts.⁵³ The *Frye* case, decided in 1923, was the basis

43. MUELLER & KIRKPATRICK, *supra* note 37, at 683.

44. MUELLER & KIRKPATRICK, *supra* note 37, at 683.

45. MUELLER & KIRKPATRICK, *supra* note 37, at 683.

46. MUELLER & KIRKPATRICK, *supra* note 37, at 683-84.

47. MUELLER & KIRKPATRICK, *supra* note 37, at 684.

48. MUELLER & KIRKPATRICK, *supra* note 37, at 701.

49. MUELLER & KIRKPATRICK, *supra* note 37, at 701. The "ultimate issue" prohibition under the common law was discarded with the adoption of the Federal Rules. FED. R. EVID. 704.

50. MUELLER & KIRKPATRICK, *supra* note 37, at 701.

51. MUELLER & KIRKPATRICK, *supra* note 37, at 701.

52. *United States v. Amaral*, 488 F.2d 1148, 1152 (9th Cir. 1973).

53. JOHN W. STRONG, MCCORMICK ON EVIDENCE § 203, at 362 (4th ed. 1992).

for the most common of these special rules, often referred to as the "*Frye* test" or the "general acceptance test."⁵⁴

Frye was a murder case in which the trial court declined to admit a systolic blood pressure deception test.⁵⁵ The test had been administered to the defendant, and defense counsel had offered to call an expert witness to testify about the results obtained.⁵⁶ The defense also offered to have the expert witness conduct the test in the presence of the jury, but the court refused both offers.⁵⁷

The court, without a single citation to another source in its opinion, created the now familiar threshold test that had to be met before scientific evidence could be admitted: the proponent was required to show that the evidence was derived from principles or techniques which were generally accepted in the appropriate scientific community.⁵⁸ The *Frye* court constructed this rule without explanation or precedent in its two page opinion.⁵⁹ Applying this rule, the court concluded that the systolic blood pressure deception test had not yet received sufficient standing in the physiological or psychological communities to be admissible.⁶⁰ *Frye*'s murder conviction was affirmed.⁶¹

The *Frye* standard was subsequently adopted by many courts with little discussion.⁶² For judges, the *Frye* test's virtue was that it required no technical or scientific expertise, since all they had to

54. *Id.*

55. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923). The systolic blood pressure deception test was a crude precursor to the modern polygraph lie-detector test. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2793 (1993). The test purportedly would have indicated a rise in blood pressure if the subject were not telling the truth. 293 F. at 1014.

56. 293 F. at 1014.

57. *Id.*

58. *Id.*

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

Id.

59. STRONG, *supra* note 53, § 203, at 362.

60. 293 F. at 1014.

61. *Id.* *Frye* received a life sentence, but was later pardoned when someone else confessed to the killing. William Wicker, *The Polygraphic Truth Test and the Law of Evidence*, 22 TENN. L. REV. 711, 715 (1953).

62. STRONG, *supra* note 53, § 203, at 363.

do was determine whether the evidence was of a type generally accepted in the scientific community.⁶³

Since the widespread adoption of the *Frye* test, a broad range of scientific evidence has been excluded from the courtroom for failure to demonstrate general acceptance,⁶⁴ including polygraph tests,⁶⁵ hypnotically refreshed evidence,⁶⁶ spectrographs ("voiceprints"),⁶⁷ and evidence of "compulsive gambling disorder" as a defense to non-gambling offenses.⁶⁸

Under the *Frye* test, the proponent of evidence must prove general acceptance by such means as surveys of scientific publication, judicial decisions, practical applications, or testimony of scientists as to the opinions held by their fellow scientists.⁶⁹ Through 1975, the general acceptance test was pervasive in federal courts;⁷⁰ in addition, the test has been the standard used in a majority of states.⁷¹

More recently, the *Frye* test was supported by the Bush administration.⁷² The President's Council on Competitiveness, chaired by former Vice-President Dan Quayle, advocated that all American courts adopt the *Frye* rule, and former President Bush issued an

63. David O. Stewart, *A New Test: Decision Creates Uncertain Future for Admissibility of Expert Testimony*, 79 A.B.A. J., Nov. 1993, at 48.

64. STRONG, *supra* note 53, § 203, at 363; Edward J. Imwinkelried, *Judge Versus Jury: Who Should Decide Questions of Preliminary Facts Conditioning the Admissibility of Scientific Evidence?*, 25 WM. & MARY L. REV. 577, 577-78 (1984) (citing *United States v. Brown*, 557 F.2d 541 (6th Cir. 1977); *State v. Boyington*, 379 A.2d 486 (N.J. Super. Ct. App. Div. 1977)).

65. *People v. Anderson*, 637 P.2d 354, 358-59 (Colo. 1981); *People v. Baynes*, 430 N.E.2d 1070, 1076-79 (Ill. 1981); *People v. Davis*, 72 N.W.2d 269, 281 (Mich. 1955).

66. *People v. Gonzales*, 310 N.W.2d 306, 308 (Mich. Ct. App. 1981), *aff'd*, 385 N.W.2d 585 (Mich. 1986); *Polk v. State*, 427 A.2d 1041, 1048 (Md. Ct. Spec. App. 1981).

67. *Cornett v. State*, 450 N.E.2d 498, 503 (Ind. 1983); *Reed v. State*, 391 A.2d 364, 377 (Md. 1978).

68. *United States v. Carmel*, 801 F.2d 997, 999 (7th Cir. 1986) (excluding evidence that the alleged compulsive gambling disorder was sufficiently related to nongambling offenses to be the basis for an insanity defense); *United States v. Shorter*, 809 F.2d 54 (D.C. Cir. 1987), *cert. denied*, 484 U.S. 817 (1987) (ruling that the failure to pay taxes could not be tied to pathological gambling).

69. STRONG, *supra* note 53, § 203, at 363.

70. See, e.g., *United States v. Alexander*, 526 F.2d 161, 163 n.3 (8th Cir. 1975); *United States v. Skeens*, 494 F.2d 1050, 1053 (D.C. Cir. 1974) ("This case [*Frye*] has been followed uniformly in this and other Circuits and there has never been any successful challenge to it in any federal court.").

71. 1 PAUL C. GIANNELLI & EDWARD J. IMWINKELRIED, *SCIENTIFIC EVIDENCE* § 1-5, at 9 (2d ed. 1993). By the late 1970's the *Frye* test was the standard used by forty-five states. Imwinkelried, *supra* note 64, at 577.

72. Edward J. Imwinkelried, *Abolish the Frye Test*, CALIFORNIA LAWYER, Apr. 12, 1992, at 63.

executive order requiring federal litigators to limit the evidence they submitted to that which qualified under the *Frye* rule.⁷³

Conservative theorist Peter Huber asserted that the United States economy has been put at a disadvantage by the recent move away from the *Frye* rule.⁷⁴ Huber argued that this has resulted in the introduction of "junk science" as evidence against U.S. corporations in product liability and toxic tort lawsuits.⁷⁵ Huber suggested that this junk science has led juries to wrongfully find corporations liable, thus forcing American industry to absorb unnecessary costs.⁷⁶

Frye rule supporters assume that lay jurors are not competent to evaluate scientific proof and that many will overestimate the probative value of scientific evidence.⁷⁷ The *Frye* general acceptance rule is credited by its proponents for protecting against juries that would treat novel scientific evidence as infallible, promoting uniformity in evidentiary rulings, avoiding time-consuming hearings on the validity of novel techniques, and shielding the legal system from new types of evidence until a larger pool of experts is available to evaluate it.⁷⁸ However, most commentators agree that these objectives can be achieved with a less drastic limitation on admissibility.⁷⁹

C. The Move Away From *Frye* and Toward a Relevancy Standard

In the last twenty years, the *Frye* rule has come under attack; it has been criticized, limited, modified, and rejected in various jurisdictions.⁸⁰ A number of jurisdictions have abandoned it altogether, especially since the adoption of the Federal Rules of Evidence in 1975.⁸¹

73. *Id.*

74. *Id.* (citing PETER W. HUBER, *GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM* (1991)).

75. *Id.*

76. *Id.* But see Kenneth J. Chesebro, *Galileo's Retort: Peter Huber's Junk Scholarship*, 42 AM. U. L. REV. 1637, 1670-75 (1993) (criticizing *GALILEO'S REVENGE* and its treatment of Bendectin claims).

77. Imwinkelried, *supra* note 64, at 580.

78. STRONG, *supra* note 53, § 203, at 363; GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(A), at 13; Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later*, 80 COLUM. L. REV. 1197, 1207 (1980).

79. STRONG, *supra* note 53, § 203, at 363.

80. STRONG, *supra* note 53, § 203, at 363.

81. *United States v. Jakobetz*, 955 F.2d 786, 794 (2d Cir. 1992), *cert. denied*, 113 S. Ct. 104 (1992); *United States v. Downing*, 753 F.2d 1224, 1232 (3d Cir. 1985); *United States v. Gwaltney*, 790 F.2d 1378, 1381-82 (9th Cir. 1986), *cert. denied*, 479 U.S. 1104 (1987).

The Federal Rules of Evidence apply in federal court in both criminal and civil cases, regardless of whether federal or state law supplies the rule of decision.⁸² In addition, most states have adopted codes modeled after the Federal Rules.⁸³ In states that have not adopted the Federal Rules, the state courts cite them and sometimes adopt their principles.⁸⁴

One criticism of the *Frye* test is that it excludes potentially useful evidence until enough time has passed for a consensus to develop among the scientific community.⁸⁵ Some critics say this makes the test too conservative, while others consider this conservative feature an advantage.⁸⁶

Although the *Frye* test appears certain on its face, in that all the trial judge must know is whether the evidence is accepted in the scientific community, in application the test is much more ambiguous. The application of the *Frye* test involves two steps.⁸⁷ First, the court must identify which scientific field relates most closely to the evidence offered, and, second, the court must determine whether the scientific principle underlying the evidence has been generally accepted by members of that field.⁸⁸ One problem often encountered with identifying the appropriate scientific field is that many scientific techniques involve more than one discipline.⁸⁹ The *Frye* test gives no guidance as to which experts should be counted, nor does it explain whether "general acceptance" means virtually everyone counted, a majority, or perhaps only a substantial number.⁹⁰

82. MUELLER & KIRKPATRICK, *supra* note 37, at 3. However, in diversity cases where federal courts must apply state substantive law, the Federal Rules call for application of state evidence rules in certain areas, such as presumptions, competency of witnesses, and privileges. MUELLER & KIRKPATRICK, *supra* note 37, at 3; FED. R. EVID. 301, 501, 601.

83. MUELLER & KIRKPATRICK, *supra* note 37, at 3. By 1992, the following 34 states had adopted rules based on the Federal Rules of Evidence: Alaska, Arizona, Arkansas, Colorado, Delaware, Florida, Hawaii, Idaho, Iowa, Louisiana, Maine, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin, Washington, and Wyoming. MUELLER & KIRKPATRICK, *supra* note 37, at 3 n.2.

84. MUELLER & KIRKPATRICK, *supra* note 37, at 3.

85. Giannelli, *supra* note 78, at 1223. A literal interpretation of *Frye v. United States* requires courts to always wait for a "cultural lag" period to pass, during which the new method filters through the scientific community and gathers enough momentum for the required level of acceptance. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(E), at 21.

86. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(E), at 21-22.

87. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(B), at 14.

88. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(B), at 14.

89. Giannelli, *supra* note 78, at 1208. For example, the study of speech may involve anatomy, physiology, physics, psychology, and linguistics. Giannelli, *supra* note 78, at 1208.

90. Giannelli, *supra* note 78, at 1210.

Because both steps are troublesome,⁹¹ commentators have criticized the test as vague and unenlightening.⁹²

While the merits of the *Frye* test have always been extensively debated, the debate over its validity intensified in 1975 after the adoption of the Federal Rules of Evidence. Critics and commentators were divided over whether the Federal Rules of Evidence had superseded the *Frye* test.⁹³ The United States Court of Appeals for the Second Circuit held as early as 1978 that the *Frye* test was not adequate as a threshold test and styled its test instead on probativeness, materiality, reliability, and tendency to prejudice the jury, an obvious reference to the Federal Rules of Evidence.⁹⁴ In a later decision, the Second Circuit determined that the test for admission of novel scientific evidence was "whether the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue."⁹⁵ The court adopted this rule from Federal Rule of Evidence 702, which allows experts to give opinion testimony as to scientific knowledge if it assists the fact finder.⁹⁶ The Second Circuit held that, for evidence to be helpful to the fact finder, it must be relevant and reliable.⁹⁷

The United States Court of Appeals for the Third Circuit rejected the *Frye* test in 1985 for policy reasons.⁹⁸ The court did not hold that the Federal Rules of Evidence overruled *Frye*,⁹⁹ but it determined that the *Frye* test suffered from serious flaws.¹⁰⁰ The Third Circuit observed that the general acceptance test was too malleable to provide the order and uniformity that its proponents sought.¹⁰¹ The Third Circuit declared that, because of its vagueness, the *Frye* test had been manipulated by courts in making determinations about which scientific field had accepted the technique and about what level of acceptance constitutes "general acceptance."¹⁰² The Third Circuit held that the *Frye* test was so conservative that it conflicted with

91. Giannelli, *supra* note 78, at 1208. Selection of the scientific field may be unclear because of overlapping or the availability of subspecialties. Moreover, the choice of fields may be dispositive. Giannelli, *supra* note 78, at 1208.

92. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(B), at 14.

93. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-5(F), at 22.

94. *United States v. Williams*, 583 F.2d 1194, 1198 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

95. *United States v. Jakobetz*, 955 F.2d 786, 796 (2d Cir. 1992), *cert. denied*, 113 S. Ct. 104 (1992).

96. *Id.*

97. *Id.*

98. *United States v. Downing*, 753 F.2d 1224, 1232 (3d Cir. 1985).

99. *Id.*

100. *Id.* at 1237.

101. *Id.*

102. *Id.* at 1236.

the spirit of the Federal Rules of Evidence,¹⁰³ which take a liberal view toward the admission of expert testimony.¹⁰⁴ The Third Circuit concluded that the general acceptance test was not a necessary precondition for admissibility; general acceptance was merely one factor trial courts should consider.¹⁰⁵

The United States Court of Appeals for the Eighth Circuit adopted an admission standard even more conservative than *Frye* in a case involving deoxyribonucleic acid (DNA) testing.¹⁰⁶ The court adopted a three-prong test which required general acceptance of the underlying theory, general acceptance of the procedures for implementing the theory, and adherence to the procedures by the testing laboratory.¹⁰⁷ The court concluded that Federal Rule of Evidence 702 did not supersede the *Frye* test because the two rules were compatible and not mutually exclusive.¹⁰⁸

In addition to these decisions, a number of alternative approaches to the general acceptance test have been proposed. One proposal by Professor McCormick would treat scientific evidence the same as other evidence.¹⁰⁹ This approach would be consistent with the Federal Rules of Evidence and would employ a three part analysis: ascertaining the probative value of the evidence, identifying countervailing dangers, and balancing the results of the first two steps.¹¹⁰

Other possible standards for admission include: substantial acceptance by the scientific community, direct analysis of reliability or validity by the court without consideration of acceptance, automatic admission coupled with court-appointed expert testimony if the court deems it necessary, screening of new developments by panels of scientists rather than by the courts, and the "traditional" standards of relevancy and necessary expertise.¹¹¹

State courts, like their federal counterparts, have been divided between those adhering to the *Frye* test and those adopting the relevancy approach. In 1989, twenty-eight states and the District of Columbia utilized the *Frye* test, seventeen states used some form of

103. *Id.* at 1237.

104. *Id.* at 1226.

105. *Id.* at 1237.

106. *United States v. Two Bulls*, 918 F.2d 56, 61 (8th Cir. 1990), *reh'g granted*, *vacated*, 925 F.2d 1127 (8th Cir. 1991).

107. *Id.*

108. *Id.* at 60 n.7.

109. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-6, at 26.

110. GIANNELLI & IMWINKELRIED, *supra* note 71, § 1-6, at 27.

111. STRONG, *supra* note 53, § 203, at 363-64.

the relevancy approach, and the remaining five states used a combination of the two or were unclear as to the standard.¹¹²

IV. REASONING OF THE COURT

In *Daubert*, the Supreme Court acknowledged the debate over the merits of the *Frye* test, but ultimately based its decision on its determination that the test was superseded by the Federal Rules of Evidence, which became effective in 1975.¹¹³ The Court began its analysis with Rule 402, which provides that all relevant evidence is admissible unless an exception is made by the Constitution, Acts of Congress, Supreme Court Rules pursuant to statutory authority, or elsewhere in the Rules of Evidence.¹¹⁴ The Court interpreted Rules 401 and 402 as creating a liberal standard for relevance.¹¹⁵

The Court then turned to Rule 702 which more specifically addresses the issue.¹¹⁶ Rule 702 allows the admission of scientific evidence if it helps the fact finder understand the evidence or determine facts in question.¹¹⁷

The Court ruled that nothing in the text of Rule 702 made general acceptance by the scientific community an absolute prerequisite to admissibility and that Merrell Dow had failed to show that the Rules were intended to incorporate a general acceptance standard.¹¹⁸ In so ruling, the Court noted that there was no mention whatsoever of *Frye* in the drafting history of the Federal Rules.¹¹⁹ As a result, the Court held that the liberal thrust of the Rules and the specific coverage of expert scientific testimony by Rule 702 with no reference to general acceptance were at odds with the austere *Frye* ruling.¹²⁰ The Court unanimously concluded that the *Frye* rule should no longer be applied in federal courts.¹²¹

112. For a complete chart of the states and the federal courts of appeals and which methodology is used in each, see Hanson, *supra* note 3, at 372-87.

113. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2793 (1993).

114. *Id.* Rule 401 defines "relevant evidence" as that tending to make a consequential fact more or less probable than it would otherwise be. *Id.* at 2794.

115. *Id.* at 2794.

116. *Id.* Rule 702 requires the expert to testify only as to scientific, technical, or other specialized knowledge. FED. R. EVID. 702. The Court limited its opinion to the scientific context since that was the only type involved in the case. 113 S. Ct. at 2795 n.8. The Court noted that scientific knowledge must be derived by the scientific method, which in turn demands a standard of evidentiary reliability. *Id.* at 2795.

117. 113 S. Ct. at 2795.

118. *Id.* at 2794.

119. *Id.*

120. *Id.*

121. *Id.*

After disposing of the *Frye* test, the Court cautioned that limits remained as to the admissibility of purportedly scientific evidence.¹²² The Court held that the Federal Rules of Evidence place a duty upon trial judges to ensure that all scientific testimony or other evidence is relevant and reliable.¹²³

The Court interpreted Rule 702 as restricting an expert to testimony of only scientific, technical, or other specialized knowledge.¹²⁴ The Court limited its holding, however, to the scientific context since that was the only type involved in the immediate case.¹²⁵ The Court reasoned that "scientific knowledge" must be derived by the scientific method, which in turn demands a standard of evidentiary reliability.¹²⁶ The Court explained that its use of the phrase "evidentiary reliability" meant "trustworthiness."¹²⁷ That standard requires that proffered testimony be supported by "appropriate validation—i.e., 'good grounds,' based on what is known."¹²⁸

The Court reasoned that the text of Rule 702 calls for relevance because it requires that the evidence "assist the trier of fact to understand the evidence or to determine a fact in issue."¹²⁹ The Court stated that one aspect of relevance is whether the evidence is sufficiently related to the facts of the case to aid the jury.¹³⁰ The Court ruled that "fit" was an apt description of the relevance consideration,¹³¹ but that "fit" is not always apparent and that scientific validity for one particular purpose does not necessarily mean scientific validity for other purposes.¹³²

The Court further held that, when expert scientific evidence is offered, Federal Rule 104(a)¹³³ requires that the trial judge make a preliminary assessment of the existence of relevance and reliability.¹³⁴

122. *Id.* at 2794-95.

123. *Id.* at 2795.

124. *Id.*

125. *Id.* at 2795 n.8.

126. *Id.* at 2795.

127. *Id.* at 2795 n.9.

128. *Id.* at 2795.

129. *Id.*

130. *Id.* at 2796.

131. *Id.* (citing *United States v. Downing*, 753 F.2d 1224, 1242 (3d Cir. 1985)).

132. *Id.* Scientific studies of the phases of the moon, for example, may be helpful if the issue involved is the amount of moonlight present on a certain night, but it will not be helpful in determining whether a person behaved peculiarly on the night in question. *Id.*

133. FED. R. EVID. 104(a) states: "Preliminary questions concerning the . . . admissibility of evidence shall be determined by the court, subject to the provisions of subdivision (b) [concerning relevancy conditioned on fact]." *Id.*

134. 113 S. Ct. at 2796.

The trial judge must determine whether the reasoning and methods used as the basis for the evidence are scientifically valid and applicable to facts in issue.¹³⁵ The Court expressed confidence that federal judges were capable of making this assessment, but it did not promulgate a definitive checklist or test for judges to use in their preliminary assessments.¹³⁶ The Court did, however, make some general observations relating to relevance and reliability, discussing four factors for trial judges to consider.¹³⁷

The first factor the Court noted was whether the theory or technique had the potential to be tested and whether it had actually been tested.¹³⁸ A second factor the Court found significant, but not dispositive, was whether the theory or technique had been subjected to peer review and publication.¹³⁹ The Court reasoned that scrutiny by the scientific community is beneficial in exposing flaws in methodology.¹⁴⁰ The Court observed that the known or potential rate of error of a particular scientific technique should also be considered, as well as whether standards for controlling the technique's operation are maintained.¹⁴¹ Finally, though disposing of the *Frye* test as the determinative rule, the Court instructed that general acceptance can still be an important part of the analysis.¹⁴² An assessment of reliability permits, but does not require, an express determination of the degree of acceptance within a particular scientific community.¹⁴³

The Court warned trial court judges to be mindful of other Federal Rules that apply when making an assessment of expert scientific testimony.¹⁴⁴ The Court noted that Rule 703 limits the use of expert opinions based on otherwise inadmissible hearsay to instances where the facts or data are of a type reasonably relied upon by experts of the field.¹⁴⁵ The Court also noted that Rule 706 gives

135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.* at 2797. The Court stated that publication, as a form of peer review, does not necessarily make the subject matter reliable, but it does increase the likelihood that substantive errors in methodology will be detected. *Id.* The Court also observed that it is possible for a scientific theory to be well-grounded without publication, when, for example, the subject is very new or of such limited interest as to not qualify for publication. *Id.*

140. *Id.*

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.*

the trial court discretion to select an expert of its own choosing.¹⁴⁶ The Court then cited Rule 403, which allows the court to exclude even relevant evidence when its probative value is outweighed by the danger of unfair prejudice, the damage that would result from confusion of the issues, or the likelihood that the evidence will be misleading to the jury.¹⁴⁷

The Supreme Court addressed the argument by Merrell Dow that abandonment of the general acceptance test would open the floodgates of junk science upon overwhelmed juries.¹⁴⁸ The Court stated that "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence."¹⁴⁹ In addition, the Court pointed out that the trial court has at its disposal the power to issue a directed verdict or summary judgment as a safety valve for disposing of evidentiary problems.¹⁵⁰

The Court acknowledged that the gate-keeping role of trial judges envisioned here would occasionally prevent the presentation of innovative and authentic insights to a jury, but stated that the Rules of Evidence strike a balance aimed at the quick and final resolution of legal disputes rather than toward an "exhaustive search for cosmic understanding."¹⁵¹

The Court vacated and remanded the case and summarized its holding by stating that general acceptance is not a necessary precondition for admission, and that, under the Federal Rules of Evidence, trial judges must ensure that an expert's testimony is based on a reliable foundation and is relevant to the case.¹⁵² "Pertinent evidence based on scientifically valid principles will satisfy those demands."¹⁵³

Chief Justice Rehnquist, joined by Justice Stevens, joined the majority in declaring that the *Frye* test had been superseded by the Federal Rules of Evidence, but they dissented as to the general observations made by the Court which were unnecessary in deciding the case.¹⁵⁴ The dissenters stated that such observations were too

146. *Id.* at 2797-98.

147. *Id.*

148. *Id.*

149. *Id.* (citing *Rock v. Arkansas*, 483 U.S. 44, 61 (1987)).

150. *Id.*; see FED. R. CIV. P. 50(a), 56.

151. 113 S. Ct. at 2798-99.

152. *Id.* at 2799.

153. *Id.*

154. *Id.* (Rehnquist, C.J., concurring in part and dissenting in part).

vague and abstract to be beneficial since they were not applied to determining the admissibility of the particular evidence of the case.¹⁵⁵ Chief Justice Rehnquist criticized the majority for "parsing the language" of Rule 702 to reach its conclusion that reliability is a prerequisite for admission of scientific evidence and observed that "countless" questions were raised by the majority's enunciation of a new standard.¹⁵⁶ Chief Justice Rehnquist further expressed concern that the new relevancy standard obligates trial court judges to become amateur scientists.¹⁵⁷

V. SIGNIFICANCE

The full impact of *Daubert* may not be known for years to come, but the potential impact is vast as courts apply the test to a broad range of evidence and reconsider the admissibility of many types of scientific evidence.¹⁵⁸

Some observers contend that the *Daubert* analysis will expose juries to evidence that would previously have been excluded under the *Frye* test,¹⁵⁹ while others believe that it will exclude some evidence which had been generally accepted in the scientific community but which cannot pass muster under the new "scientific validity" test.¹⁶⁰ It is possible that both claims are true,¹⁶¹ but it seems unlikely that many scientific techniques generally accepted in the scientific community will be found to lack scientific validity or that techniques with minimal acceptance by scientists will be found valid by courts.¹⁶²

Although general acceptance is no longer an absolute threshold requirement, relevance and reliability are. It would appear that the most significant change made by *Daubert* is that the burden for determining admission has shifted from the scientific community to the federal trial judge. The courts must now look beyond the acceptance of the scientific community into the scientific nature and

155. *Id.*

156. *Id.* at 2800.

157. *Id.*

158. Stewart, *supra* note 63, at 50-51.

159. Stewart, *supra* note 63, at 50. Professor Michael H. Gottesman of the Georgetown University Law Center, who argued the *Daubert* case for the plaintiffs, predicts that the ruling will make admission easier in the circuits that previously used the *Frye* test. Stewart, *supra* note 63, at 51. Gottesman said that part of the reason is that most scientists are employed by industry and are not inclined to agree with plaintiffs' arguments that novel scientific approaches are generally accepted. Stewart, *supra* note 63, at 51.

160. Stewart, *supra* note 63, at 50.

161. Stewart, *supra* note 63, at 50.

162. United States v. Downing, 753 F.2d 1224, 1238 (3d Cir. 1985).

validity¹⁶³ of the techniques underlying the proffered evidence. Although this may seem to effect a radical change in judicial process, it will not have a significant impact on the outcome of most trials¹⁶⁴ because trial judges will still look to the scientific community to evaluate the validity, and thus the reliability, of scientific evidence.¹⁶⁵

Many federal judges believe *Daubert* makes their job more difficult.¹⁶⁶ Professor Edward J. Imwinkelried has predicted that "[i]t is going to be hard for lay judges to come to grips with where we are."¹⁶⁷ Professor Imwinkelried approves of *Daubert* and suggests that one reason the *Frye* test lasted so long was its relative convenience for the judiciary.¹⁶⁸ Imwinkelried remarked that judges and lawyers alike were comfortable with the *Frye* test because it relieved them of the burden of determining the reliability of scientific evidence.¹⁶⁹

Some parts of the *Daubert* decision appear to leave unanswered questions, such as whether or not the general observations made by the majority apply to proffered evidence which is characterized as "technical or other specialized knowledge" rather than "scientific."¹⁷⁰ This question arises because Rule 702 makes no distinction between these types of expert testimony, while the majority opinion limits itself to the "scientific" expert category.¹⁷¹

Soon after the *Daubert* decision, some observers felt that the ruling would be applied only to the type of evidence previously subject to the *Frye* test.¹⁷² However, federal decisions are applying the *Daubert* rule broadly thus far, not only to novel scientific evidence previously subjected to the *Frye* test, but to all types of expert

163. Scientific validity is the basis for evidentiary reliability under the *Daubert* approach. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2795 n.9 (1993).

164. 753 F.2d at 1238.

165. The scientific community is the most qualified authority to assess scientific validity. *United States v. Addison*, 498 F.2d 741, 743-44 (D.C. Cir. 1974).

166. Rorie Sherman, *Judges Learning Daubert: "Junk Science" Rule Used Broadly*, NAT'L L.J., Oct. 4, 1993, at 28. Federal Senior District Judge Jack B. Weinstein of the Eastern District of New York, a widely recognized expert of the Federal Rules of Evidence, said that judges will have to give a more reasoned statement about why evidence is admitted and can no longer rubber-stamp their admissions based on general acceptance. *Id.*

167. Stewart, *supra* note 63, at 51.

168. Stewart, *supra* note 63, at 51.

169. Stewart, *supra* note 63, at 51.

170. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2800 (1993) (Rehnquist, C.J., concurring in part and dissenting in part).

171. *Id.* at 2795 n.8.

172. Sherman, *supra* note 166, at 3.

testimony, including that which is not considered "scientific."¹⁷³ Already the federal courts have applied the *Daubert* analysis to an accidentologist,¹⁷⁴ accountants,¹⁷⁵ an economist,¹⁷⁶ and a physician.¹⁷⁷

Commentators have suggested that there is now a need for scientific education seminars for judges, to prepare them for their more active role in determining whether evidence is based on solid scientific methodology.¹⁷⁸ A campaign has begun to educate judges in their role under the *Daubert* analysis.¹⁷⁹ A training program for judges has been prepared by the Carnegie Commission on Science, Technology, and Government, along with the Federal Judicial Center and the advisory committee for federal judges in the Eastern District of New York.¹⁸⁰ A pilot program was tested in September of 1993, and topics discussed under the *Daubert* analysis included the use of computer-generated evidence, DNA evidence, issues of causation in toxic tort cases, and case management techniques.¹⁸¹

The *Daubert* ruling does not directly affect state courts.¹⁸² State courts remain free to use the *Frye* test, the relevancy approach, or whatever approach they desire. The widespread adoption of the Federal Rules of Evidence by the states places them in basically the same posture as the federal courts in viewing the *Frye*-relevance dichotomy. For this reason, state court judges may feel the need to familiarize themselves with the *Daubert* analysis because of the sense of direction it gives.¹⁸³

Of course, some states have already chosen the relevancy approach. For example, in 1991, the Arkansas Supreme Court reached the same conclusion as the Supreme Court in *Daubert* when it rejected the *Frye* test in favor of a relevancy approach.¹⁸⁴ The Arkansas

173. Sherman, *supra* note 166, at 3.

174. *Datskow v. Teledyne Continental Motors Aircraft Prods.*, 826 F. Supp. 677, 682-83 (W.D.N.Y. 1993).

175. *Frymire-Brinati v. KPMG Peat Marwick*, 2 F.3d 183, 186-87 (7th Cir. 1993).

176. *Doe v. Tag, Inc.*, No. 92 C 7661, 1993 WL 484212, at *3 (N.D. Ill. Nov. 18, 1993).

177. *O'Connor v. Commonwealth Edison Co.*, 13 F.3d 1090, 1105-06 (7th Cir. 1994), *cert. denied*, 114 S. Ct. 2711 (1994).

178. Stewart, *supra* note 63, at 51 (comments of Professor Edward J. Imwinkelried).

179. Sherman, *supra* note 166, at 3.

180. Sherman, *supra* note 166, at 28.

181. Sherman, *supra* note 166, at 28.

182. Sherman, *supra* note 166, at 28.

183. Sherman, *supra* note 166, at 28 (Remarks of Dennis Catlin, Director, The Michigan Judicial Institute).

184. *Prater v. Arkansas*, 307 Ark. 180, 185, 820 S.W.2d 429, 431 (1991). The *Prater* court considered three factors to be important in the determination of

approach requires trial judges to conduct a preliminary inquiry focused on reliability, the possibility that the evidence would overwhelm, confuse, or mislead jurors, and relevance to factual issues in the particular case.¹⁸⁵ Subsequent to the *Daubert* decision, the Arkansas Supreme Court stated that it had no criticism of *Daubert*.¹⁸⁶

While federal courts that previously employed the *Frye* test are adjusting to the *Daubert* approach with perhaps some trepidation and a sense of carrying a heavier burden of assessing admissibility, there are advantages to the new approach. First, there will be uniformity; the *Frye* test is gone and all federal courts must use the relevancy-reliability analysis. Second, the *Daubert* approach gives judges increased flexibility. A trial court may admit evidence even where there has been a lack of support for the underlying technique in the scientific community, or, conversely, a judge may exclude evidence based on generally accepted science if a lack of validity or relevance is found.

Finally, in conjunction with flexibility, the autonomy of the judiciary is maintained under the *Daubert* approach. In contrast to the *Frye* test, judges will not be forced to delegate important legal decisions to scientists. This is important because the scientific acceptance of any particular technique is not motivated by the same sense of urgency as is the need for courts to reach final and binding legal judgments.¹⁸⁷

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reliability: (1) the frequency of erroneous results produced by a novel scientific technique, (2) the type of error which could occur, and (3) proof of the use of the correct protocol during the testing process. *Id.* at 186, 820 S.W.2d at 432.

Arkansas adopted the Uniform Rules of Evidence as promulgated by the National Conference of Commissioners on Uniform State Laws, which were in turn modeled after the Federal Rules. 13A U.L.A. 1, 5; Act of Feb. 10, 1976, No. 1143, § 1, 1975 Ark. Acts 2799, 2799 (codified at ARK. CODE ANN. § 16-41-101 (Michie 1994)). The Arkansas Uniform Rules of Evidence became effective July 1, 1976. Act of Feb. 10, 1976, No. 1143, § 3, 1975 Ark. Acts 2799, 2849 (codified at ARK. CODE ANN. § 16-41-101 (Michie 1994)).

The applicability of the *Frye* test in Arkansas was unclear prior to the *Prater* decision. In *Rock v. Arkansas*, 288 Ark. 566, 570, 708 S.W.2d 78, 80 (1986), *vacated and remanded on other grounds*, 483 U.S. 44 (1987), the Arkansas Supreme Court avoided choosing between the *Frye* test and "traditional evidentiary concepts." The Arkansas Supreme Court excluded hypnotically-refreshed testimony, concluding that it would be inadmissible under either standard. *Id.*

185. 307 Ark. at 186, 820 S.W.2d at 431.

186. *Jones v. Arkansas*, 314 Ark. 289, 294, 862 S.W.2d 242, 245 (1993).

187. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2798 (1993).